

Q3 Particles," incorporated herein by reference. In particular, the production of ZnO nanoparticles is described.

In the Claims

Please cancel claims 15-37 without prejudice or disclaimer.

Please substitute the following amended claims for those currently pending:

1. (Amended) A method for obtaining a plurality of quantities of compositions with an apparatus comprising a plurality of collectors, the method comprising:
reacting a first quantity of fluid reactants within a fluid stream to form a first quantity of product composition;
collecting the first quantity of product composition from the fluid stream using a first collector;
following completion of the collection of the first quantity of product composition, reacting a second quantity of fluid reactants within the fluid stream to form a second quantity of product composition, the second quantity of product composition being materially different from the first quantity of product composition; and
collecting the second quantity of product composition from the fluid stream using a second collector.

2. The method of claim 1 wherein the composition of the second quantity of fluid reactants is different from the composition of the first quantity of fluid reactants.

3. The method of claim 1 wherein a reaction condition during the reaction of the second quantity of fluid reactants is different from the reaction condition during the reaction of the first quantity of fluid reactants.

4. The method of claim 3 wherein the reaction condition is selected from the group consisting of pressure, reactant flux, reactant temperature, amount of inert diluent, amount of radiation absorbing gas, and energy input.

5. The method of claim 1 wherein the apparatus comprises a nozzle that moves relative to the plurality of collectors and wherein the nozzle is moved relative to the first collector and second collector following completion of the collection of the first quantity of product composition.

6. The method of claim 5 wherein the nozzle remains fixed and the collectors are moved relative to the nozzle.

7. The method of claim 5 wherein the collectors remain fixed and the nozzle is moved relative to the collectors.

8. The method of claim 1 wherein the apparatus has a radiation path defined by a radiation source and directing optical elements and wherein the reacting of the fluid reactants involves interacting radiation from the radiation source with the reactants.

9. The method of claim 8 wherein the radiation source is an infrared laser.

10. The method of claim 1 wherein the reactions are performed in a reaction chamber sealed from the ambient environment.

11. The method of claim 10 wherein the compositions comprise particles and the apparatus further comprises a pump and valves, and wherein the valves are opened and closed such that the first collector is exposed to the forces of the pump while the first quantity of particles are being collected and the second collector is exposed to the forces of the pump while the second quantity of particles are being collected.

12. The method of claim 1 further comprising evaluating the properties of the first quantity of product composition and the second quantity of product composition.

13. The method of claim 1 wherein one of the quantity of reactants is introduced into a reaction zone through a plurality of inlets oriented such that the reactants combine after they pass through the inlets, the reaction of the one quantity of reactants taking place within the reaction zone.

14. The method of claim 1 further comprising delivering the first quantity of reactants through a first nozzle and delivering the second quantity of reactants through a second nozzle.

Please add new claims 39-52 as follows:

39. (New) The method of claim 1 wherein the first quantity of product composition and the second quantity of product composition comprise solid particles.

40. (New) The method of claim 1 wherein the first quantity of product composition and the second quantity of product composition comprises a metal.

41. (New) The method of claim 1 wherein the first quantity of product composition and the second quantity of product composition comprises chemical powders selected from the group consisting of metal/metalloid oxides, metal/metalloid carbides, metal/metalloid nitrides, and metal/metalloid sulfides.

42. (New) The method of claim 1 wherein the first quantity of fluid reactants and the second quantity of fluid reactants comprise vapor reactants.

43. (New) The method of claim 1 wherein the first quantity of fluid reactants and the second quantity of fluid reactants comprise aerosol reactants.

44. (New) The method of claim 1 wherein first quantity of fluid reactants and the second quantity of fluid reactants comprise a metal/metalloid compound.

45. (New) The method of claim 12 wherein the evaluating the properties comprises evaluating the crystal structure by x-ray diffraction.

46. (New) The method of claim 12 wherein the evaluating the properties comprises evaluating particle size using dynamic light scattering.

47. (New) The method of claim 12 wherein the evaluating the properties comprises evaluation of the optical properties.

48. (New) The method of claim 47 wherein the optical properties are selected from the group consisting of emission, absorption, Raman scattering, fluorescence and combinations thereof.

49. (New) The method of claim 12 wherein the evaluating the properties comprises measurement of the electroactive properties.

50. (New) The method of claim 12 wherein the evaluating the properties comprises measurement of the electrical properties or magnetic properties.

51. (New) The method of claim 12 wherein the evaluating the properties is performed without removing the products from the collectors.

52. (New) The method of claim 12 wherein the evaluating the properties is performed after removing the products from the collectors.

REMARKS

Claims 1-14 and 38-52 are pending. Claim 38 is withdrawn from consideration. By this Amendment, claims 15-37 are canceled without prejudice, claim 1 is amended and new claims 39-52 are added. Applicants acknowledge with appreciation that claims 8-11 and 13 have been found allowable. The specification has been amended to correct an obvious typographical error and to update references to copending applications that have issued.

Claim 1 has been amended to more particularly point out Applicants' invention. The amendment of claim 1 is supported by the specification, for example, at page 6, lines 18-22 and page 7, lines 19-21.